AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

1. (Withdrawn) An array comprising a plurality of double-stranded oligonucleotides immobilized on a metal substrate, each of said double-stranded oligonucleotides including a first single-stranded oligonucleotide and a second single-stranded oligonucleotide, said first and second single-stranded oligonucleotides being entirely or partially bonded together in a complementary manner to form said double-stranded oligonucleotide, wherein among said first and second single-stranded oligonucleotides, only said first single-stranded oligonucleotide is bonded on said substrate.

2. (Withdrawn) The array as defined in claim 1, wherein said first single-stranded oligonucleotide has a functional group or bonding group at the 5' terminal or 3' terminal thereof, said first single-stranded oligonucleotide being bonded to said substrate through said functional group or bonding group.

3. (Withdrawn) The array as defined in claim 1, wherein said metal substrate is a transparent substrate having a surface layer formed of a thin gold layer.

4. (Withdrawn) The array as defined in claim 1, wherein said metal substrate includes a dimer-type alkane densely packed thereon, wherein said first single-stranded oligonucleotide is bonded to said metal substrate through direct or indirect bond with said dimer-type alkane.

5. (Withdrawn) The array as defined in claim 1, which is bonded to said substrate by use of a heterobifunctional hydrophilic polymer molecule expressed by a general formula of X – R – Y , wherein: X is a functional group on a surface of a solid surface or a functional group to be bonded to a functional group introduced to the surface of said solid surface; Y being a functional group to be bonded to a biomolecule (A); and R being a repeating unit of said polymer molecule.

6. (Withdrawn) The array as defined in claim 1, which has a background region on which a hydrophilic polymer molecule is immobilized.

7. (Withdrawn) The array as defined in claim 6, wherein said hydrophilic polymer molecule includes a plurality of metal-binding functional groups.

8. (Withdrawn) The array as defined in claim 6, wherein said hydrophilic polymer molecule has a plurality of branches, wherein said metal-binding functional groups are located at the terminals of at least a part of said branches.

9. (Withdrawn) The array as defined in claim 6, wherein said hydrophilic polymer molecule is ethylene glycol.

10. (Withdrawn) The array as defined in claim 1, which includes a marker indicative of a position of a spot.

11. (Withdrawn) The array as defined in claim 7, wherein said marker has a distinguishable character or numeral shape.

12. (Withdrawn) The array as defined in claim 7, wherein said marker is patterned in a monomolecular layer.

13. (Withdrawn) A method of preparing a double-stranded oligonucleotide array comprising the steps of (1) hybridizing a first single-stranded oligonucleotide and a second single-stranded oligonucleotide to form a double-stranded oligonucleotide having said first and second single-stranded oligonucleotides entirely or partially bonded together in a complementary manner, and (2) bonding a terminal of said first single-stranded oligonucleotide to a metal substrate to immobilize said double-stranded oligonucleotide formed in said step (1) on said metal substrate.

14. (Withdrawn) The method as defined in claim 13, wherein said first single-stranded oligonucleotide has a functional group or bonding group at the 5' terminal or 3' terminal thereof, wherein said method includes the step of bonding said first single-stranded oligonucleotide to said substrate through said functional group or bonding group.

15. (Withdrawn) The array as defined in claim 13, wherein said metal substrate is a transparent substrate, wherein said method includes the step of forming a thin gold layer on a surface of said metal substrate.

16. (Withdrawn) The array as defined in claim 13, which includes the steps of densely packing a bifunctional-type alkane on said metal substrate, and bonding said first single-stranded oligonucleotide to said metal substrate through direct or indirect bond with said bifunctional-type alkane.

17. (Currently Amended) A biomolecule interaction measuring method comprising the steps of:

providing a double-stranded oligonucleotide array comprising a background region on which a hydrophilic polymer molecule is immobilized and a region on which a plurality of double-stranded oligonucleotides are immobilized on a metal substrate, and

measuring the interaction between said double-stranded oligonucleotides and a biomolecule or aggregate thereof,

wherein each of said double-stranded oligonucleotides include a first single-stranded oligonucleotide and a second single-stranded oligonucleotide, said first and second single-stranded oligonucleotides being entirely or partially bonded together in a complementary manner to form said double-stranded oligonucleotide,

wherein among said first and second single-stranded oligonucleotides, only said first single-stranded oligonucleotide is bonded to said substrate,

wherein said biomolecule interaction measuring method utilizes surface plasmon resonance, and

wherein said first single-stranded oligonucleotide is bonded to said substrate by a cross-linking agent including a heterobifunctional hydrophilic polymer molecule expressed by a general formula of X – R – Y , wherein:

X is a functional group covalently bonded with a functional group on a surface of a solid surface or a functional group introduced to the surface of said solid surface;

Y is a functional group to be bonded to said first single-stranded oligonucleotide; and

R is a hydrophilic repeating unit expressed by $-(O-R_1)_n-$, wherein R_1 is an alkylene group and n is an integer number in the range of 4 to 450.

18. (Cancelled)

19. (Cancelled)

20. (Previously Presented) The method as defined in claim 17, wherein said double-stranded oligonucleotide array used in said measuring includes a marker indicative of a spot.

21. (Currently Amended) A biomolecule interaction measuring method comprising:

measuring the interaction between a first biomolecule and a second biomolecule or aggregate thereof by use of a substrate with a solid surface comprising a background region on

which a hydrophilic polymer molecule is immobilized other than an area having said first biomolecule immobilized thereon,

wherein said first biomolecule is immobilized on said substrate by a cross-linking agent including a heterobifunctional hydrophilic polymer molecule expressed by a general formula X – R – Y, wherein:

X is a functional group covalently bonded with a functional group on a surface of a solid surface or a functional group introduced to the surface of said solid surface;

Y is a functional group to be bonded with said first biomolecule; and

R is a hydrophilic repeating unit expressed by $-(O-R_1)_n-$, wherein R_1 is an alkylene group and n is an integer number in the range of 4 to 450, and

wherein said biomolecule interaction measuring method utilizes surface plasmon resonance.

22. (Original) The method as defined in claim 21, wherein said heterobifunctional hydrophilic polymer molecule has a molecular weight of 200 to 20000.

23. (Cancelled)

24. (Original) The method as defined in claim 21, wherein said functional groups X and Y of said heterobifunctional hydrophilic polymer molecule are any two selected from the group consisting of an amino group, a carboxyl group, a succinimide group, a sulfonated succinimide group, a

maleimide group, a thiol group, an aldehyde group, a vinyl group, an isocyanate group, an epoxy group, a hydrazine group and an azido group.

25. (Previously Presented) The method as defined in claim 21, wherein said solid surface comprises a thin gold layer formed on said substrate, said thin gold layer including a functional group which is introduced using a compound expressed by a general formula X' – R' – Y',

wherein X' is a functional group reactive to said thin gold layer, Y' is a functional group to be bonded with said heterobifunctional hydrophilic polymer molecule represented by the general formula X – R – Y, and R' is an organic group.

26. (Original) The method as defined in claim 21, wherein said substrate includes plural kinds of said first biomolecules immobilized thereon in an array arrangement.

27. (Original) The method as defined in claim 21, wherein said first biomolecule is nucleic acid.

28. (Cancelled)

29. (Original) The method as defined in claim 21, wherein the interaction between said first biomolecule and said second biomolecule or aggregate thereof is measured through surface plasmon resonance imaging.

30. (Original) The method as defined in claim 21, wherein said second biomolecule is a protein.

31. (Original) The method as defined in claim 30, wherein said protein is a transfer factor.

32. (Cancelled)

33. (Previously Presented) The method as defined in claim 21, wherein said measurement is performed using an array which includes a marker indicative of a spot.

34. (Withdrawn) An array for immobilizing a biomolecule or an aggregate of biomolecules on the surface thereof, comprising a immobilization area for immobilizing said biomolecule or said aggregate of biomolecules, and a background area other than said immobilization area, wherein said immobilization area includes a substance serving as an initial point of said immobilization, and said background area includes a hydrophilic polymer molecule immobilized thereon.

35. (Withdrawn) The array as defined in claim 34, wherein said background area includes a hydrophilic polymer molecule immobilized thereon.

36. (Withdrawn) The array as defined in claim 34, wherein said hydrophilic polymer molecule includes a plurality of metal-binding functional groups.

37. (Withdrawn) The array as defined in claim 34, wherein said hydrophilic polymer molecule has a plurality of branches, wherein said metal-binding functional groups are located at the terminals of at least a part of said branches.

38. (Withdrawn) The array as defined in claim 34, wherein said hydrophilic polymer molecule is ethylene glycol.

39. (Withdrawn) An array comprising a plurality of spots formed on a metal substrate in an array arrangement, and a plurality of markers indicative of the respective positions of said spots.

40. (Withdrawn) The array as defined in claim 35, wherein said marker has a distinguishable character or numeral shape.

41. (Withdrawn) The array as defined in claim 35, wherein said marker is patterned in a monomolecular layer.

42. (Withdrawn) An array comprising a plurality of first functional groups residing thereon, wherein a biomolecule having a second functional group is immobilized on said array through the reaction between a part of said first functional groups and said second functional groups, wherein the remaining first functional groups are blocked to preclude covalent bonding.